

**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

**IN RE: JOHNSON & JOHNSON
TALCUM POWDER PRODUCTS
MARKETING, SALES
PRACTICES, AND PRODUCTS
LIABILITY LITIGATION**

**Civil Action No. 3:16-md-2738-
FLW-LHG
MDL No. 2738**

THIS DOCUMENT RELATES TO ALL CASES

**THE PLAINTIFFS' STEERING COMMITTEE'S MEMORANDUM OF
LAW IN REPLY TO DEFENDANTS JOHNSON & JOHNSON AND
JOHNSON & JOHNSON CONSUMER INC.'S MEMORANDUM OF LAW
IN OPPOSITION TO PLAINTIFFS' MOTION TO EXCLUDE THE
OPINIONS OF DEFENDANTS' EPIDEMIOLOGY EXPERTS**

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I. INTRODUCTION

The Plaintiffs' Steering Committee ("PSC") files its reply to Johnson & Johnson and Johnson & Johnson Consumer Inc.'s ("J&J") *Opposition to Plaintiffs' Motion to Exclude the Opinions of Defendants' Epidemiology Experts* (ECF Doc. 9871) ("J&J Opp."), which addresses Drs. Ballman, Diette, and Merlo.¹

Unlike J&J, whose *Memorandum of Law in Support of Motion to Exclude Plaintiffs Experts' General Causation Opinions* (ECF Doc. 9736) ("J&J Gen. Caus. Mem.") challenges *every* aspect of *every* PSC's experts' general causation opinions,² the PSC challenges only a few very specific **methodologic** missteps by J&J's three epidemiology experts. They are:

- In addressing the "**consistency of association**" under Bradford Hill -- J&J's epidemiology experts improperly employed a two-step "**significance testing**" and "**hierarchy of evidence**" methodology. Not only do J&J's experts provide scant support for their methodology, but they also ignore the fact that their methodology is

¹ Since Defendant PCPC filed a separate opposition concerning its epidemiology expert, Jonathan Borak, MD, the PSC will address that opposition in a separate reply filed contemporaneously with this reply.

² J&J said it was "telling" that plaintiffs did not attack each and every aspect of J&J's experts' opinions, including each Bradford Hill factor in the specific order they are laid out in the Hill article. *See* J&J Opp. at 62 n. 166. But Plaintiffs recognize that the purpose of a Rule 702 motion is not to "try their case" with the hope that the court agrees with Plaintiffs' set of facts. That is the role of the jury, not the court. Plaintiffs have, therefore, tried to stay close to the real purpose of a Rule 702 motion to address true methodologic issues, and not focus on issues which are clearly questions of fact for the jury.

specifically rejected by the epidemiologic and statistical communities they purport to be members of.

- In addressing “**dose response**” and “**biologic plausibility**” under Bradford Hill, J&J’s epidemiology experts use definitions and standards to analyze the evidence that they made-up without any scientific reference. Indeed, the definitions they used to analyze “dose response” and “biologic plausibility” are unreliable because they are at odds with how these terms are defined by epidemiologists outside litigation (including Professor Hill).
- In conducting his causation analysis, Dr. Merlo did not even address several Bradford Hill aspects, including “**biologic plausibility**” and “**specificity**,” among others.
- In criticizing the PSC’s experts’ opinions, particularly on the “**strength of association**” under Bradford Hill, J&J’s experts persistently misrepresent and “cherry pick” what the PSC’s experts actually say, demonstrating that they have crossed-the-line from providing reliable expert testimony to providing unreliable testimony.

In attempting to address these specific methodologic challenges—and prop-up its experts’ methodologies—J&J’s opposition vacillates between *denying* that its epidemiology experts even used the challenged methodology and *defending* their use of it. Along the way, J&J misrepresents the PSC’s actual challenge and ignores mainstream methodologic principles expressed in multiple textbooks on both epidemiology and statistics, going back many years—including the *Reference Manual on Scientific Evidence* itself. In fact, J&J’s experts’ methodologies are so indefensible that J&J resorts to arguing that the textbooks and consensus statements

by literally hundreds of scientists, with no stake in this litigation, are statements by “outliers” who would “turn the scientific world on its head.”³ This would include one of its own consultants, Professor Rothman.

To be clear, J&J’s opposition makes a lot of noise about “outliers” but cites no textbook, no consensus statements, and no scientific literature that supports the use of the flawed “significance testing” methodology.⁴ Moreover, J&J cites no persuasive authority that supports the methodology of rigidly sorting studies by a co-called “hierarchy.”⁵ J&J similarly provides no support for the “dose response” or “biologic plausibility” definitions actually used by its experts who, in their reports and depositions, also fail to cite authority for these definitions.⁶ Instead, all J&J does in its opposition is attack the PSC’s experts’ opinions, and cite the testimony of its own experts as “proof” that its experts were reasonable in their attacks. Obviously, this kind of *ipse dixit* argument is both circular and does not pass muster under *Daubert* and its progeny.

³ J&J Opp. at 23-31; *J&J Memorandum in Response to Plaintiffs’ Steering Committee’s Omnibus Brief Regarding Legal Standard and Scientific Principles for Assessing General Causation* (ECF Doc. 9882) at 12-19 (“J&J Omnibus Brief Resp.”).

⁴ See J&J Opp. at 23-31 (not only misstating the PSC’s argument on statistical significance but also not citing any authority as to how significance testing, as opposed to evaluating statistical significance in studies, is a proper methodology).

⁵ *Id.* at 31-41.

⁶ *Id.* at 41-58.

Instead of truly addressing head-on the methodologic defects raised by the PSC, J&J mostly avoids them with the same slight-of-hand tactic it used in its general causation brief. J&J deflects the Court’s attention away from its experts’ flawed methodologies and attempts to convince the Court that its experts’ conclusions are “right” and the PSC’s experts (who J&J spends a lot of time quoting) are “wrong.” But the focus of the Court as gatekeeper at this stage is not on the experts’ conclusions, *i.e.* who is “right” or “wrong,” but whether the experts—including J&J’s—used a proper methodology.⁷ Indeed, the *only* inquiry at this stage is:

[W]hether the experts “considered sufficient data to employ the methodology,” not whether this consideration of the data led to the correct conclusion. For an expert conclusion that is subject to doubt, “[i]t is the role of the jury to weigh the sources of doubt.”⁸

In this reply, the PSC will therefore focus exclusively on the fundamental *methodologic* errors that permeate and vitiate J&J’s epidemiologic experts’ opinions, not the *conclusions* they reach.

⁷ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 585 (1993) (the focus of admissibility under *Daubert* is the reliability of the experts’ methods, not their correctness); *see also Beech Aircraft Corp. v. Rainey*, 488 U.S. 153, 1969 (1988); Fed. R. Evid. 702.

⁸ *In re Testosterone Replacement Therapy Prod. Liab. Litig.*, No. MDL 2545, 2017 WL 1833173 at *12 (N.D. Ill. May 8, 2017) (citations omitted).

II. ARGUMENT

A. LONGSTANDING EPIDEMIOLOGIC AND STATISTICAL PRACTICE DOES NOT ENDORSE “SIGNIFICANCE TESTING” AND “HIERARCHY OF EVIDENCE” STUDY SORTING TO DETERMINE CONSISTENCY OF ASSOCIATION

As demonstrated in the PSC’s opening brief, J&J’s epidemiology experts were in lock-step in using the two-step process to assess association and consistency of association of talcum powder and ovarian cancer. *First*, they applied “significance testing” to the talcum powder observational studies. *Second*, they mechanically sorted the studies using a specific “hierarchy” they defined.⁹

In its opposition, J&J initially protests that its experts did not engage in the two-step process described in the PSC’s motion; that its experts only “considered” statistical significance and were thereafter “flexible” as to which talcum powder studies, case control or cohort, to credit.¹⁰ Recognizing, however, that even a cursory review of its experts’ reports demonstrates that they really did use the more

⁹ See *Plaintiffs’ Steering Committee’s Memorandum of Law in Support of its Motion to Exclude the Opinions of Defendants’ Epidemiology Experts Karla Ballman, Ph.D., Christian Merlo, M.D., MPH, Gregory Diette, M.D., MHS, and Jonathan Borak, M.D., DABT* (ECF Doc. 9737-1) (“PSC’s Mem. Exclude Defs.’ Epi. Experts”) at 29-46.

¹⁰ J&J Opp. at 11-23.

rigid, mechanical and unscientific two-step approach described by the PSC, J&J then pivots to try and defend it.¹¹

Before addressing whether J&J's epidemiology experts employed this two-step process (they did), the PSC will first address J&J's rather pointed misstatements in its opposition to defend "significance testing" and "hierarchy of evidence."

1. J&J's "Significance Testing" Argument is Disingenuous

a. The PSC and Its Experts Do Not Reject "Statistical Significance," Only "Significance Testing"

In defending the first methodologic step taken by its experts, J&J sows confusion by conflating "significance testing" with "statistical significance." They are not the same, but J&J ignores the distinction.¹² Instead, it reframes the PSC's challenge arguing that it is the PSC's view that "statistical significance...does not matter" and that the PSC allegedly claim that statistical significance has been "universally condemned by both the epidemiologic and statistical communities..."¹³ By redefining the PSC's challenge in this way, J&J seeks to avoid defending head-on its' own experts' significance testing methodology. Apparently, J&J believes that if it conflates "statistical significance" with "significance testing" often enough, the Court will either not appreciate the difference or simply not care.

¹¹ *Id.* at 23-31.

¹² *Id.* at 23-24; *see also* J&J Omnibus Brief Resp. at 12-19.

¹³ J&J Opp. at 23-24.

In fact, the PSC spent no less than 10 pages in its *General Causation Brief* (pages 98-108), explaining specifically that it did in fact *embrace* statistical significance as an important metric in assessing any observational study but *rejected* the concept of “significance testing” employed by J&J and its witnesses.¹⁴ The PSC could not have been clearer:

PSC and its experts do not “attack” statistical significance. Nor would it be in its best interests to do so – since the majority of studies show a statistically significant increase risk between the genital use of talcum powder and epithelial ovarian cancer. What the PSC attacks is the *misuse* and *misapplication* of statistical significance in the form of “significance testing” to create inconsistency where none exists. In other words, the PSC and its experts do not convert statistical significance from the “useful” metric that the *Zolof* and *Roundup* courts described into the mechanical “yes” and “no” *litmus* test for association that J&J advances. To do so would ignore other useful metrics of association like “risk estimates” and “confidence intervals” ...[S]ignificance testing without reference to any other useful metric of association, *e.g.* non-significant but positive risk ratios and confidence intervals that overlap the risks seen in statistically significant studies, is an unreliable fallacy well-recognized in the epidemiologic and statistic community.¹⁵

¹⁴ See also PSC’s Mem. Exclude Defs.’ Epi. Experts at 28 n. 65 (“This is not to say that statistical significance is irrelevant to the question of association or consistency of association. It is relevant. While relevant, however, significance is not the *test* of either association or consistency of association.”)

¹⁵ J&J Omnibus Brief Resp. at 99-100; see also, PSC’s Mem. Exclude Defs.’ Epi. Experts at 28 n. 65.

J&J’s opposition is fundamentally off-the-mark. If J&J’s experts had simply “considered statistical significance as part of its overall assessment of consistency” as J&J’s opposition now pretends they did,¹⁶ the PSC would not have sought to exclude their opinions on this ground. But, as set forth below, J&J’s experts did not simply “consider” statistical significance, they assessed in using a “significance testing” methodology and then argue that their expert’s approach is dispositive.¹⁷

b. J&J Cites No Authority in its Opposition to Support the “Significance Testing” Methodology Used by its Experts

After conflating “significance testing” and statistical significance, J&J purports to defend its experts’ “significance testing” methodology by pretending that the PSC’s motion springs entirely from a single 2019 “comment” in the journal *Nature*.¹⁸ According to J&J, this *Nature* comment was not only written by an “outlier” who was a “consulting expert” for the PSC, but is contrary to contemporary statistical and epidemiologic practice.¹⁹ J&J’s assertion is misleading and wrong. Notably, J&J ignores the body of contemporary statistical and epidemiologic

¹⁶ J&J Opp. at 29.

¹⁷ See *infra* at Section II(C).

¹⁸ J&J Opp. at 23-31.

¹⁹ See *id.* at 27-31; see also *id.* at 26 n. 69.

literature which disapproves of “significance testing” and J&J conspicuously fails to cite a *single* article, textbook, or authoritative statement that would support it.²⁰

In its motion, the PSC provided overwhelming support for the proposition that “significance testing” methodology is not only disfavored but has been soundly rejected. J&J’s suggestion that the methodology set forth by the PSC is based solely on the 2019 *Nature* comment is patently false. The body of literature that J&J ignores is succinctly summarized below:

- **Reference Manual on Scientific Evidence:** In the 2011 *Reference Manual*, it was noted that “significance testing” had a decreasing number of adherents:

Others are critical of using strict significance testing, which rejects all studies with an observed *p*-value below that specified level. Epidemiologists have become increasingly sophisticated in addressing the issue of random error and examining the data from a study to ascertain what information they may provide about the relationship between an agent and a disease, without the necessity of rejecting all studies that are not statistically significant.²¹

By 2019, rejection of “significance testing” is no longer just increasing as the *Reference Manual* stated in 2011, its rejection is now complete and unambiguous.

²⁰ See *id.* at 23-31 (not only misstating the PSC’s argument on statistical significance but also not citing any authority as to how significance testing, as opposed to evaluating statistical significance in studies, is a proper methodology).

²¹ *Ref. Man.* at 579.

- **The Statistical Community:** In 2016, years *before* the *Nature* editorial, the Board of the American Statistical Association (ASA) published its organizations’ consensus statement “Statement on Statistical Significance and P Values.”²² The ASA’s action—its first on *any* methodologic issue—was designed to “shed light” on the practice of significance testing which the ASA noted was being “misused by the broader research community.”²³ To address the practice, the ASA Board assembled a committee which was made up of the nation’s leading statisticians and epidemiologists “representing a wide variety of points of view.”²⁴ Representing the ASA, the committee uniformly rejected the significance testing methodology. In support, the 2016 ASA statement cited over 30 references in the peer-reviewed literature, going back to the 1960’s. The March 2019 comment in *Nature*, which J&J attacks, was built on the 2016 ASA consensus statement. It was far from the musings of a lone gadfly in the statistical community. To the contrary, it was signed by over 800 scientists (including ones from all of J&J’s experts’ universities). Moreover, it accompanied an entire issue of the journal *The American Statistician* devoted to that topic, including 42 articles on the subject and another editorial.

The collective voice of the statistical community has spoken loudly and clearly on this issue.

²² Ronald L. Wasserstein & Nicole A. Lazar, *The ASA’s Statement on p-Values: Context, Process, and Purpose*, 70 *The American Statistician* 129 (2016), Exhibit 63 to PSC’s Mem. Exclude Defs.’ Epi. Experts.

²³ *Id.* at 129.

²⁴ *Id.* Notably, the two “outliers” that J&J has identified, Drs. Greenland and Rothman, were asked by the ASA Board to be on the ASA committee which drafted this statement on “significance testing.” In contrast, J&J’s statistician, Dr. Ballman (also an ASA member) was not and was not even aware of the ASA’s consensus statement even by the time of her deposition. Ballman Dep. at 460:4-461:24.

- **The Epidemiology Community:** In the PSC’s brief, the PSC also produced excerpts from numerous basic epidemiology textbooks which addressed the subject of “significance testing.” These include textbooks by Drs. Kenneth Rothman, Sander Greenland, and Timothy Lash, *Modern Epidemiology* (2008), Dr. William Oleckno, *Epidemiology: Concepts and Methods* (2008), Drs. Michael Borenstein, Larry Hedges, Julian Higgins, and Hannah Rothstein, *Introduction to Meta-Analysis* (2009). The PSC also provided articles in the peer-reviewed epidemiologic literature including Rothman’s “6 Research Misconceptions” and Hill’s 1965 article on casual Inferences.²⁵

The epidemiology community, too, has spoken loudly and clearly.

Other than generally defending the importance of “statistical significance” as a tool (which the PSC does not dispute), neither J&J nor its experts provide *specific* support for “significance testing” as a methodology—not a book, not an article, not a single statement. J&J’s reaction and failure to respond speaks volumes about the lack of validity of the defense argument.

2. J&J’s “Hierarchy of Evidence” Argument is Contrary to Basic Epidemiologic Principles

In their opposition, J&J purports to defend its experts’ mechanical “sorting” of talcum powder studies in descending order: cohort, hospital-based case-control studies, and population-based case-control studies. With respect to meta-analyses of

²⁵ See PSC’s Mem. Exclude Defs. Epi. Experts at 26-29.

observational studies, these analyses are dismissed as unreliable.²⁶ J&J’s experts call this a “fundamental” and “established” hierarchy of scientific evidence and advocate that studies be categorically sorted accordingly, and that anyone who rejects this rigid algorithm is an “outlier.”²⁷ As with their “significance testing” argument, however, J&J’s assertion is more than misleading, it is simply wrong. Notably, J&J ignores the *Reference Manual* itself as well as textbooks and articles that reject the “hierarchy” and does not mention the type of sorting that J&J’s experts performed in their litigation reports.

In its motion, the PSC provided overwhelming support for the proposition that a rigid “hierarchy” does *not*, as J&J claims, distinguish between observational studies of different design. This support came from two textbooks (including those by Dr. Leon Gordis and Dr. Kenneth Rothman) as well as a number of published articles. These will not be repeated here.²⁸

It is important, however, to emphasize that in its opposition J&J ignores the *Reference Manual* itself, recognizing the *Reference Manual* itself does *not* support

²⁶ Dr. Ballman, in particular, dismisses any meta-analyses of observational studies and doesn’t think they should be published. Ballman Dep. at 552:7:16.

²⁷ See J&J Opp. at 31-4.

²⁸ See generally PSC’s Mem. Exclude Defs.’ Epi. Experts at 34-37; Plaintiffs’ Steering Committee’s Omnibus Memorandum of Law in Response and Opposition to Defendants’ Johnson & Johnson and Johnson & Johnson Consumer Inc.’s Motion to Exclude Plaintiffs’ General Causation Opinions (ECF Doc. 9888) (“PSC’s Opp. Gen. Causation”) at 127-131.

its view. There is a “hierarchy” in the *Reference Manual*, but that hierarchy treats observational studies *equally* and does *not* distinguish between cohort or case control studies and the *Reference Manual* even places observational meta-analyses *above* single observational studies that J&J contends are of the highest reliability. It states:

When ordered from strongest to weakest, systematic review of randomized trials (meta-analysis) is at the top, followed by single randomized trials, **systematic reviews of observational studies, single observational studies**, physiological studies, and unsystematic clinical observations.²⁹

In their expert reports, Drs. Ballman, Merlo, and Diette provided little or no support for their “hierarchy of studies” methodology. Dr. Merlo sought to support this with a “White Paper” from an Australian Organization he found on the internet,³⁰ Dr. Ballman cited an obscure paper on Plastic Surgery,³¹ and, even worse, Dr. Diette cites “generally” to the Gordis *Epidemiology* textbook which, as set forth in the PSC’s brief, treats all observational studies in the same category.³²

To further illustrate that their opinions are driven by the needs of J&J’s legal team, the unsupported “evidentiary pyramid” in Dr. Ballman’s expert report (where

²⁹ *Ref. Man.* at 724-25 (emphasis added).

³⁰ Merlo Report at 35 n. 78; Merlo Dep. at 251:3-254:16.

³¹ Ballman Report at 15 n. 29.

³² Diette Report at 5 n. 5. For a discussion of Gordis’s textbook and the “hierarchy of evidence,” see PSC’s Mem. Exclude Defs.’ Epi. Experts at 37 n. 84 & 85.

she differentiates cohort and case control studies),³³ is different than the “hierarchy” description she included in her *Viagra* expert report:

There are different levels of evidence for determining whether a factor is causal based on the underlying study design. A recognized ranking of common study designs from greatest level of evidence to lowest is (1) randomized clinical trials, (2) **cohort and case-control studies**, and (3) case reports and case series³⁴

J&J’s opposition does little to shore-up the “hierarchy,” much less the “sorting” methodology employed by their experts. Notably, J&J *ignores* the *Reference Manual*, multiple textbooks and articles in the peer-reviewed literature and cites to a published report from the WCRF, a website and the reports of their own litigation experts.³⁵

B. IN DESPERATION, J&J ATTACKS DRS. ROTHMAN AND GREENLAND AS “OUTLIERS”

Sprinkled throughout J&J’s opposition are allegations that anyone who disagrees with J&J’s courtroom science and its experts’ conclusions is an “outlier.”

³³ Ballman Report at 4.

³⁴ Ballman Dep. Ex. 18, Expert Report of Karla Ballman, Ph.D., *In re Viagra (Sildenafil Citrate) Prod. Liab. Litig.* at 6 (emphasis added), attached as **Exhibit 1**.

³⁵ J&J Opp. at 33 n. 89. J&J does cite the Oleckno textbook (J&J Opp. at 33) but that textbook does not endorse the “study sorting” methodology that its experts used. Rather, Oleckno makes clear that the decision on causation invariably relies not on a mechanical application of a hierarchy, but on a “judgment based on relevant, cumulative information” of all studies. Oleckno, *Epidemiology: Concepts and Methods* at 190.

This applies not only to the PSC's experts, but also to Drs. Rothman and Greenland, who J&J single out. This is simply desperation.

Dr. Rothman, one of the "outliers," was *actually* retained by J&J in 2000 on this very issue to provide expert analysis to the National Toxicology Program (NTP), which was considering the then existing talc science.³⁶ Though Dr. Rothman's talc-specific analysis is now dated by 18 years (and based on the misconception that talcum powder is "pure"), the general epidemiology observations he makes (including the fact that cohort studies are not stronger evidence than case control studies, and that confounding likely does not explain the talcum powder risk) are as relevant today as they were 18 years ago. Most notably, J&J did *not* consider Dr. Rothman to be an outlier when it submitted his expert report to the NTP and certainly did not criticize his statements that "it is commonly believed that the validity of case-control studies is worse than cohort studies, *but this view is mistaken.*"³⁷ Interestingly, J&J has not obtained a scientific update on the talcum powder science from this "outlier," instead electing to proceed with witnesses like Drs. Merlo, Ballman, and Diette who, to this day, J&J has not used in the normal course of its

³⁶ Kenneth J. Rothman, at al. *Interpretation of Epidemiologic Studies on Talc and Ovarian Cancer* (Nov. 28, 2000), IMERYS 209695, attached as Exhibit 70 to PSC's Mem. Exclude Defs. Epi. Experts.

³⁷ *Id.* at 3.

business for any epidemiologic issue or consulting , much less in relation to talcum powder.

The truth is that neither Dr. Rothman nor Dr. Greenland are outliers in the epidemiologic and statistical communities. The *Reference Manual* itself cites Drs. Rothman and Greenland as authorities in epidemiology and statistics dozens of times. Two of Dr. Rothman’s textbooks—*Causal Inference* (1988) and *Modern Epidemiology* (2008) (which he coauthored with Dr. Greenland)—are among only twenty-two (22) “References on Epidemiology” listed in the *Reference Manual*.³⁸

C. CONTRARY TO J&J’S MOTION, ITS EXPERTS PERFORMED A TWO-STEP PROCESS OF “SIGNIFICANCE TESTING” AND “STUDY SORTING”

Apparently recognizing that the two-step methodology it tries to defend is, in fact, indefensible, J&J back-pedals from what its experts actually did and pivots to argue that its experts only “considered” statistical significance and did not “mechanically” sort the results by study design. If that were true, the PSC would not have challenged them on this ground. But the evidence is clear that J&J’s experts employed this flawed methodology no matter what J&J may now contend:

- **Dr. Merlo:** Dr. Merlo’s analysis of consistency is clearly set out in his chart on pages 34-35 of his report. In the last column, he asked the question: “*Statistically Significant Association?*” and answered “no” or “weak” (i.e. “yes”). On page 31 he explains that lack of consistency is where

³⁸ *Ref. Man.* at 630.

not all studies show a “statistically significant association” and on page 45 he further explains that only “statistically significant associations” are considered. **That is significance testing.** In his chart, he further sorts by study design and concludes that grouping them by design hierarchy makes it easier to determine that there is no association.³⁹ **That is study sorting.**

- **Dr. Diette:** Like his colleague Dr. Merlo, Dr. Diette divided his results in discriminant categories between cohort, population-based case-control, and hospital-based case-control studies, the last two of which he charted on pages 13-14 of his report. He clearly sorted by statistical significance without *any* discussion of the positive RR’s or any reference to confidence intervals stating simply that “11 of the 25 population based case-control studies do not show a statically significant association and none of the hospital based studies does.”⁴⁰ Further, he stated that the fact that “none of the cohort studies found a statistically significant association...is critical...”⁴¹ **That is plainly significance testing and study sorting.**
- **Dr. Ballman:** Dr. Ballman did not chart her results as Drs. Merlo or Diette did, but it is clear that she employed “significance testing” and mechanical “study sorting.” For example, she stated that:

There is a clear inconsistency between the *different study types*, with case-control studies yielding a *statistically significant* association ranging from 1.26 and 1.35, and cohort studies yielding a *non-significant* association ranging from 1.02 to 1.06. *Hence, there is no evidence of a causal*

³⁹ *Id.* at 44-45.

⁴⁰ Diette Report at 14.

⁴¹ *Id.* at 24.

*relationship because the results are inconsistent.*⁴²

At deposition, Dr. Ballman tried mightily to evade the question of whether “significance testing” was her metric for inconsistency but, despite coaching by two J&J lawyers, and pages upon pages of non-responsive answers, she ultimately agreed that statistical significance, yes or no, was “what she stated there” in her report.⁴³

D. J&J USES THE WRONG STANDARD FOR “DOSE RESPONSE” AND “BIOLOGIC PLAUSIBILITY” AND THIS RENDERS THE ENTIRE ANALYSIS OF ITS EXPERTS ON THESE BRADFORD HILL ASPECTS UNRELIABLE

On pages 48-57 of its initial motion, the PSC demonstrated that J&J’s experts measured the talcum powder evidence using *specific* definitions for dose response and biologic plausibility *not* supported by any scientific literature, and which were largely “made up” for this case. One example was Dr. Ballman’s unsupported *ipse dixit* descriptions of “dose response,” which she simply called “common sense,” and which she claimed “most people would agree” with.⁴⁴

Importantly—and notably—J&J’s opposition does *not* even attempt to address the specific methodologic question PSC’s motion poses; namely, whether each of J&J’s experts employed a proper definition of dose response and biologic

⁴² Ballman Report at 26 (emphasis added).

⁴³ Ballman Dep. at 23:18-34:3

⁴⁴ PSC’s Mem. Exclude Defs.’ Epi. Experts at 55; Ballman Dep. at 521:17-522:3; 530:14-531:12; 531:19-536:2.

plausibility in their Bradford Hill analysis of talcum powder and ovarian cancer evidence. In this way, J&J wholly side-stepped the very thorny *methodologic* error of the definitions employed by its own experts to analyze the data. Instead of defending the precise definitions that its own experts used, J&J changes the subject to argue the evidence itself and why its experts are right and why PSC's experts are wrong.⁴⁵ J&J therefore responds to the PSC's *Daubert* methodology challenge against their experts by arguing that the PSC's evidence would not pass summary judgment.

As set forth in the PSC's general causation brief at pages 69-91, and restated herein, this is a Fed R. Evid.703 motion and *not* a Fed. R. Civ. P. 56 motion. This Court is not asked to determine whose experts are "right." The question in this portion of the *Daubert* motion is therefore a simple one: Did J&J's experts use the right definition of dose response and biologic plausibility to analyze the talcum powder data to reach *their* general causation opinions?

J&J avoids ever answering that question. Although J&J talks at length about the PSC's experts' opinions and the PSC's evidence and how J&J's experts think

⁴⁵ See, e.g., J&J Opp. at 46 ("a number of *plaintiffs' experts* focus on a cherry picked subset of studies..."); *id.* at 51 ("Even if J&J's experts' definition of biologic plausibility were inaccurate, the evidence and the Plaintiffs' experts opinions would not satisfy that lesser standard.")

the PSC's experts and evidence are wrong, J&J fails to even address the definitional question above that *its own experts* used.

E. DR. MERLO'S OPINIONS ARE UNRELIABLE BECAUSE HE DID NOT PERFORM A COMPLETE CAUSATION ANALYSIS

The PSC have also established another reason why Dr. Merlo's causation opinions are unreliable—he did not complete his analysis of the issue.⁴⁶ Specifically, he failed to even consider Bradford Hill aspects like “biologic plausibility” or “specificity.” J&J's opposition does not deny that but contends, in one paragraph of its opposition, that he did not have to do so because there was no evidence of an association between talcum powder and ovarian cancer.⁴⁷

Putting aside the fallacy of “no association” in light of all the positive studies and his improper “significance testing/study sorting” methodology which disregarded many studies, it is simply not true that a clear-cut statistically significant association needs to be established before the Bradford Hill criteria be considered.

As the Court held in *Zolof*:

Pfizer argues that the Bradford–Hill criteria should only be applied after an association is well established, and that there is no well-established association between Zolof exposure during pregnancy and birth defects. However, because the Bradford–Hill criteria include as factors the strength of the association between

⁴⁶ PSC's Mem. Exclude Defs.' Epi. Experts at 64-65.

⁴⁷ J&J Opp. at 58.

exposure and outcome, and replication of findings, the Court will not adopt Pfizer's view...⁴⁸

Not only did the Third Circuit make clear in *Zoloft* that a statistically significant association is not the litmus test for a causal analysis as Dr. Merlo (and J&J's other epidemiologists claim), courts have found that causation can be found without any observational data, statistically significant or otherwise. *See In re Tylenol Products Liability Litig.* 198 F. Supp. 3d 466 (E.D. Pa. 2016) (holding that causation can be made under Bradford Hill based on toxicology and case reports)⁴⁹

It would be misleading to allow Dr. Merlo to present an incomplete causal analysis to the jury.

**F. J&J'S EXPERTS' CHERRY-PICKING METHODOLOGY
FROM THE PSC'S EXPERTS IS IMPROPER**

A central pillar of J&J's overall *Daubert* strategy is its contention that the PSC's experts categorized a 25-45% increased risk of ovarian cancer as "strong."

⁴⁸ *In re Zoloft (Sertraline Hydrochloride) Prod. Liab. Litig.*, 26 F. Supp. 3d 449, 460 (E.D. Pa. 2014).

⁴⁹ For that reason, J&J's selective citation of the reference manual on page 58, footnote 155 is wholly misleading. The reference manual states that the Bradford Hill guidelines are employed after a study finds an association, but it also makes clear that the association is "not a statistically significant one" like J&J and Dr. Merlo assumed. *See In Re Tylenol*, at n. 20. In this case, virtually every study of every design (case control, cohort and meta-analysis) had a positive association between talcum powder and ovarian cancer, most with statistical significance.

As discussed previously,⁵⁰ the PSC's experts did not categorize the *magnitude* of talcum powder-ovarian cancer association as "weak," "moderate" or "strong" as there is no agreed upon epidemiologic definition for these categories. To support J&J's *Daubert* strategy of painting the PSC's experts as "outliers," J&J had its experts cherry-pick from the PSC's experts' reports and depositions for any reference to words like "strong," "high" or "strength." As demonstrated in the PSC's motion, however, J&J's methodology was itself unreliable since the words they rely on were taken wholly out of context.

In defense of J&J's experts' methodology for criticizing the PSC's experts, J&J's opposition purports to pull out "direct quotes, not cherry-pick[ed] sound bites" from the PSC's experts that allegedly illustrate that J&J's experts were not cherry picking.⁵¹ In doing so, they actually prove the PSC's point: These quotes, particularly when read in the context in which they were given, talk about *the strength of evidence supporting the association as "strong," not the magnitude of the association*. Regarding the magnitude of the association, the PSC's experts opine that the evidence reveals a 25-45% increase, which, they note, is consistent

⁵⁰ PSC's Mem. Exclude Defs. Epi Experts at 66-72; PSC's Opp. Gen. Caus. at 131-149.

⁵¹ J&J Opp. at 60-61.

with other well-known carcinogens like second-hand smoking and lung cancer, which are causal in nature.

In misconstruing PSC's experts' statements to support J&J's legal theories, J&J's experts have improperly crossed the line from scientific expert to litigation advocate. Such testimony is unreliable *per se* and should be excluded.

III. CONCLUSION

For these reasons, the Court should exclude the opinions of J&J's epidemiology experts.

Respectfully submitted,

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